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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jani Hamalainen

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EXAMINER

PATEL, DEVANG R

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,883	Applicant(s) HAMALAINEN ET AL.	
	Examiner DEVANG PATEL	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The reply filed on 4/28/08 is acknowledged. In light of the amended claim 1, rejection under 35 U.S.C. 112, second paragraph is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1, 4, and 6-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gormon et al. (US 3248515) in view of Inoue et al. (US 6079243).

- a. **Regarding claim 1, Gormon et al.** discloses a filler wire guide tube, a base material of the guide tube being plastic, including an inner layer region 14 and an outer metal layer region 16 (casing) [col. 4, lines 49-75]. Gormon does not teach the inner region containing particulate additive of PTFE and the outer layer region not being blended with the additive. **Inoue et al. ("Inoue")** is drawn

to producing lubricated welding wire for smooth feeding through conduit tubes during welding operation [col. 1, lines 5-8; claim 1]. Inoue discloses that it is known to apply lubricants such as MoS_2 to the liner of conduit tube in order to reduce the feeding resistance of wires. Moreover, Inoue discloses application of additional lubricants on the wire surface [col. 1, lines 55-58]. In particular, Inoue discloses powder lubricants (i.e. particulate) composed of a mixture of graphite, **PTFE**, potassium soap, talc, wax, MoS_2 , etc. [col. 7, lines 5-8]. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the lubricating particles of Inoue to the inner plastic tubing layer of Gormon because it would reduce the feeding resistance between the wire surface and the guide tube during the welding operation [Inoue- col. 1, line 56]. It is the Examiner's position that the inner layer region of Gormon (liner + lubricating particles applied thereon) reads on "an inner layer region **containing** a particulate additive."

b. **As to claim 4**, Gormon et al. discloses the thickness of inner layer being about the same as the wire diameter [col. 6, lines 35-37], which is 0.02" - about 500 micron. Moreover, it would have been obvious to an artisan of ordinary skill at the time of invention to choose the instantly claimed range (0.2 mm-0.5 mm) for the intended purpose of guiding a filler wire through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [MPEP 2144.05].

c. **As to claim 6**, Gormon et al. teaches guide wire tube having an inner diameter of 0.052" (1.3 mm; column 5), which meets the limitation of an inner diameter of about 2-4 mm. As for an outer diameter, Gormon discloses spacer rings 24 of a diameter much greater than that of a wire- which could be 0.125"-3.17 mm [col. 5, lines 34-36]. The casing (i.e. outer layer) is naturally of a larger diameter than the spacer rings [fig. 8]- greater than 3.17 mm, and thus, it meets the limitation of an outer diameter of about 4-7 mm. Moreover, it would have been obvious for an artisan of ordinary skill at the time of invention to choose the instantly claimed range of inner and outer diameter for the intended purpose of guiding a filler wire through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [MPEP 2144.05].

d. **As to claim 7**, Inoue discloses the particulate composition including molybdenum sulfide [col. 1, line 57].

e. **Regarding claim 8**, Gormon et al. discloses a filler wire guide tube, including an inner layer region 14 containing Teflon (PTFE) and an outer metal layer region 16 being not blended with the additive [col. 4, lines 49-75]. Gormon does not teach inner region containing particulate additive of PTFE. **Inoue** is drawn to producing lubricated welding wire for smooth feeding through conduit tubes during welding operation [col. 1, lines 5-8; claim 1]. Inoue discloses that it is known to apply lubricants such as MoS₂ to the liner of conduit tube in order to

reduce the feeding resistance of wires. Moreover, Inoue discloses application of additional lubricants on the wire surface [col. 1, lines 55-58]. In particular, Inoue discloses powder lubricants (i.e. particulate) composed of a mixture of graphite, **PTFE**, potassium soap, talc, wax, MoS₂, etc. [col. 7, lines 5-8]. It would have been obvious to a person of ordinary skill in the art at the time of the invention to form the inner plastic tubing layer of Gormon using lubricating particles suggested by Inoue because it would reduce the feeding resistance between the wire surface and the guide tube during welding operation [Inoue- col. 1, line 56]. The presence of PTFE in the inner layer inherently reduces accumulation of debris and fouling and an outer metal layer of Gormon provides structural stiffness.

5. **Claims 2-3 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gormon et al. (US 3248515) in view of Inoue et al. (US 6079243) as applied to claim 1 above, and further in view of Jamison (CRC Handbook of Lubrication and Tribology, 1994).

f. **Regarding claims 2-3**, Gormon, Johnston, or Inoue does not disclose the additive composition including particulate silicon or the claimed ranges of PTFE and silicon. However, Jamison (CRC Handbook of Lubrication and Tribology, 1994) discloses various tribological plastics formulated with internal lubricating additives (pg. 131). Jamison discloses Nylon 6/6 (PA) material comprising 18% PTFE and 2% silicon (Table 6). Jamison further states: "*Other additives, notably PTFE, molybdenum disulfide, and graphite powders, and silicon and mineral oils*

decrease friction and wear" (pg. 134, para. 3). In view of Jamison, absent any showing of unexpected result, the recited composition would have been obvious to an artisan of ordinary skill at the time of the invention because one would have determined, by routine experimentation, appropriate amounts of additives in order to form a guide tube having the desired antifriction characteristics.

g. As to claim 5, Gormon discloses the liner formed by a tube of nylon, Teflon®, or other antifriction plastic having a low coefficient of friction with respect to the wire W passing therethrough [col. 4, line 54]. Jamison discloses using HDPE in liners for cables [pg. 134]. The claim would have been obvious because the substituting HDPE of Jamison as the base material in the liner of Gormon would have yielded the predictable result of providing improved lubricity to a person of ordinary skill in the art at the time of the invention.

6. **Claims 1-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gormon et al. (US 3248515) in view of Johnston (US 3240233), and further in view of Ren (US 6086970).

h. Regarding claim 1, Gormon et al. discloses a filler wire guide tube, a base material of the guide tube being plastic, including an inner layer region 14 and an outer metal layer region 16 (casing) [col. 4, lines 49-75]. Gormon does not teach inner region containing particulate additive of PTFE and the outer layer region not being blended with the additive. However, providing an additive in or on the inner region of wire guide tube is known in the art of welding. **Johnston**

discloses applying suitable lubricant to the inner region of guide conduit 49 to effectively convey wire 48 during welding [fig. 9]. Johnston is silent as to the specific type of lubricant. **Ren** (drawn to film coated surface guide wire tube) discloses extruded tubing having a lubricating PTFE powder, such tubing has an enhanced lubricity and collapse strength. Ren provides external lubricant comprising PTFE particles to further enhance the lubricity to reduce friction of a guide wire within a lumen of tube [abstract; col. 2, lines 25-48; col. 3, lines 3-7]. Ren is an analogous art since Ren is concerned with a tube composition providing a strong yet lubricious tube for a guide wire, medical catheters being an intended application [col. 1, lines 7-9]. In view of collective disclosures of Gormon, Johnston and Ren, it would have been obvious to a person of ordinary skill in the art at the time of the invention to form the inner plastic tubing layer of Gormon using lubricating particles suggested by Ren because it would provide an enhanced lubricity and collapse strength to a finished tubing of Gormon [col. 4, lines 12-40]. It is the Examiner's position that the inner layer region of Gormon (liner + lubricating particles applied thereon) reads on "an inner layer region **containing** a particulate additive."

i. **Regarding claim 2**, Ren further discloses the use of hard particles such as silica, mica, glass bead, talc, and molybdenum disulfide in combination with polymers to reduce the sliding friction of the two surfaces (col. 3, lines 30-37). Silica (silicon dioxide) particles are taken to be embraced by particulate silicon, since it does not positively require the silicon to be an element as opposed to be

compound. Ren further states: *"The addition of hard particles in combination with a lubricating solid, such as PTFE, improves lubricity over either compound added alone"* (col. 3, line 45). It would have been obvious to a person of ordinary skill in the art at the time of the invention to form the inner plastic liner of Gormon using silica particles of Ren in order to improve the lubricity compared to adding PTFE alone [col. 3, lines 43-48].

j. **As to claim 3**, Ren discloses "PA compound 9" with lubricant composition of 3% PTFE and 5% of silica (Table 1). Absent any showing of unexpected result, the recited composition would have been obvious to an artisan of ordinary skill at the time of the invention making the modified plastic tubing of Gormon et al, because one would have determined, by routine experimentation, appropriate amounts in order to form resultant tubing having the desired characteristics of having an enhanced lubricity and collapse strength.

k. **As to claim 4**, Gormon et al. discloses the thickness of inner layer being about the same as the wire diameter [col. 6, lines 35-37], which is 0.02" - about 500 micron. Moreover, it would have been obvious to an artisan of ordinary skill at the time of invention to choose the instantly claimed range (0.2 mm-0.5 mm) for the intended purpose of guiding a filler wire through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [MPEP 2144.05].

l. **As to claim 5**, Ren discloses that it is known in the art to make the guide wire tubes out of HDPE [col. 1, line 40].

m. **As to claim 6**, Gormon et al. teaches guide wire tube having an inner diameter of 0.052" (1.3 mm; column 5), which meets the limitation of an inner diameter of about 2-4 mm. As for an outer diameter, Gormon discloses spacer rings 24 of a diameter much greater than that of a wire- which could be 0.125"-3.17 mm [col. 5, lines 34-36]. The casing (i.e. outer layer) is naturally of a larger diameter than the spacer rings [fig. 8]- greater than 3.17 mm, and thus, it meets the limitation of an outer diameter of about 4-7 mm. Moreover, it would have been obvious for an artisan of ordinary skill at the time of invention to choose the instantly claimed range of inner and outer diameter for the intended purpose of guiding a filler wire through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art [MPEP 2144.05].

n. **As to claim 7**, Ren discloses the particulate composition including molybdenum sulfide.

o. **Regarding claim 8, Gormon et al.** discloses a filler wire guide tube, including an inner layer region 14 containing Teflon (PTFE) and an outer metal layer region 16 being not blended with the additive [col. 4, lines 49-75]. Gormon does not teach inner region containing particulate additive of PTFE. However, providing an additive in or on the inner region of wire guide tube is known in the

art of welding. **Johnston** discloses applying suitable lubricant to the inner region of guide conduit 49 to effectively convey wire 48 during welding [fig. 9]. Johnston is silent as to the specific type of lubricant. **Ren** (drawn to film coated surface guide wire tube) discloses extruded tubing having a lubricating PTFE powder, such tubing has an enhanced lubricity and collapse strength. Ren provides external lubricant comprising PTFE particles to further enhance the lubricity to reduce friction of a guide wire within a lumen of a tubing [abstract; col. 2, lines 25-48; col. 3, lines 3-7]. Ren is an analogous art since Ren is concerned with a tube composition providing a strong yet lubricious tube for a guide wire, medical catheters being an intended application [col. 1, lines 7-9]. In view of collective disclosures of Gormon, Johnston and Ren, it would have been obvious to a person of ordinary skill in the art at the time of the invention to form the inner plastic tubing layer of Gormon using lubricating particles suggested by Ren because it would provide an enhanced lubricity and collapse strength to a finished tubing of Gormon [col. 4, lines 12-40]. The presence of PTFE in the inner layer inherently reduces accumulation of debris and fouling and an outer metal layer of Gormon provides structural stiffness.

Response to Arguments

7. Applicant's arguments, see page 6, filed 4/28/08, with respect to the rejection(s) of claim(s) 1 under Fontirroche et al. in view of Ren have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further

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consideration, a new ground(s) of rejection is made in view of Gormon et al. and Inoue et al.

Conclusion

Claims 1-8 are rejected.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./

Examiner, Art Unit 1793

/Jessica L. Ward/

Supervisory Patent Examiner, Art Unit 1793